STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of Electric Vehicle Policies	**Case 13-E-0199**

COMMENTS OF THE CITY OF NEW YORK IN RESPONSE TO THE QUESTIONS POSED BY THE PUBLIC SERVICE COMMISSION

Dated: July 8, 2013

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PRELIMINARY STATEMENT

On May 22, 2013, the Public Service Commission ("Commission") commenced this proceeding to examine its policies related to plug-in electric vehicles ("PEVs").[1] As noted in the May 22 Order, the preliminary focus of this proceeding is on the Commission's jurisdiction over public charging stations and other Commission policies or actions which could affect widespread adoption and use of PEVs.

The City of New York ("City") is on record supporting electric vehicles. For example, in his 2013 State of the City, Mayor Bloomberg confirmed the City's commitment to electric vehicles, by creating 10,000 electric vehicle charger ready parking spots across the city, expanding what is already one of the largest electric vehicle fleets in the nation, and increasing the use of electric vehicles as taxis.

In addition, *PlaNYC*, the City's comprehensive effort to reduce the City's greenhouse gas emissions in 2030 by 30% from 2005 levels, incorporates several efforts to support widespread PEV adoption. As part of this effort, transportation emissions (accounting for 22% of the City's total greenhouse gas emissions) would be reduced 44% by 2030. In particular, *PlaNYC* includes the following efforts to foster PEV development in the City: (1) incorporating electric vehicles into the City's fleet; (2) streamline the City's regulations for installing charging stations in homes; (3) work with all stakeholders to facilitate publicly-available charging stations; and (4) collaborate with other major cities to share information and resources.[2]

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[1] Case 13-E-0199, In the Matter of Electric Vehicle Policies, Notice of New Proceeding and Seeking Comments (May 22, 2013) ("May 22 Order").

[2] *PlaNYC*, Exploring Electric Vehicle Adoption in New York City (January 2010).

As discussed in more detail below, electric vehicles can offer improvements over gasoline vehicles in terms of reduced pollution and greenhouse gas emissions, as well as to help meet the City's *PlaNYC* targets. PEVs in the City emit over 70% less CO_2 than a conventional vehicle. They also virtually eliminate emissions of the carcinogen benzene and NOx, which can cause respiratory illness and asthma.

The City applauds the Commission for instituting this proceeding and looks forward to working with the Commission to ensure increased customer acceptance of PEVs. The City appreciates the Commission's efforts to date on this important issue, including the Commission's recent update of its residential electric submetering regulations, which, in response to the City's comments, incorporated an exemption for PEV charging stations. This ruling removed a potential barrier to more widespread PEV adoption.

The City also appreciates the efforts of Consolidated Edison Company of New York, Inc. ("Con Edison"). With respect to PEVs, Con Edison has been an important partner of the City's and has undertaken innovative programs designed to better understand PEV usage and penetration. The City believes utility cooperation is essential and looks forward to continued collaboration with Con Edison in order to foster PEV growth.

In accordance with the May 22 Order, the City provides the following responses to the questions posed in the May 22 Order. The City understands that, depending on the comments received from other interested stakeholders, this proceeding may require multiple phases. The City would welcome the opportunity to discuss its comments with the Commission and Department Staff, and it is willing to expand on its responses and/or provide additional information as needed.

RESPONSES TO THE COMMISSION QUESTIONS

Jurisdiction over Charging Stations

1. To what extent and in what ways would the development of consumer acceptance and use of electric vehicles and of the supporting services for electric vehicles be affected by the Commission's determination that it does or does not have direct jurisdiction over publicly available Charging Stations, their operators or the transaction between publicly available Charging Station operators and members of the public?

It is the City's opinion that the market can best serve the needs of PEV customers and that the Commission need not regulate the transaction between charging providers and members of the public. Unlike electricity distribution, publicly available charging is not a natural monopoly. As the City noted in its comments in the Commission's sub-metering proceeding, "As PEV Stations expand to parking facilities throughout the City, competition among building or garage owners will eliminate the need for regulation, and consumers will be able to compare the price and quality offered by each facility, and select the most advantageous charging option."[3] The City continues to believe that market forces will provide the appropriate mechanism to regulate the development and expansion of PEV charging stations, and additional regulation of charging stations should be avoided. This model has worked well in other jurisdictions, including California, Tennessee, and Texas, all of which have developed robust charging station markets without regulating the interaction between the providers and the customer.

Currently, there are few barriers to entry in providing public charging for PEVs. Likewise, because the City anticipates that most charging will take place at home stations, consumers will have a significant amount of purchasing power. For publicly-available charging

[3] Case 11-M-0710, In the Matter of Reviewing and Amending the Electric Submetering Regulations, 16 NYCRR Part 96, Comments of The City of New York (April 26, 2012) at 25.

stations, maps of stations and their prices are available online and through mobile applications. Consumers are therefore already empowered to "vote with their dollars" and choose chargers based on price, speed, and service.

In New York City, the current PEV charging station market is varied. There is significant owner diversity in the approximately 140 charging stations currently available. For example, Car Charging Group operates chargers in at least 47 locations through partnerships with independent and major garage operators. Con Edison also manages its own stations at 15 New York City locations. Several garages offer level 1 charging (also known as "wall charging") to monthly customers. The City will soon be operating over 30 of its own chargers in ten of its publicly accessible municipal garages. Additionally, NYSERDA has announced grant funded deployments at Columbia University, Montefiore Medical Center and other city locations.

The market for charging stations, however, is far from saturated. Additional charging infrastructure can be added at retail stores, garages, and parking lots to further serve the public and increase competition.

2. In determining whether the provisions of the Public Service Law provide it with jurisdiction, should the Commission consider the manner in which a customer is billed for electric vehicle charging services, e.g., per kWh, per hour, day, month, etc?

3. If the commenter argues that the Commission should assert jurisdiction over publicly available Charging Stations and their operators, how should the Commission exercise that jurisdiction? For example, should public Charging Stations and their operators be subject to rate regulation?

The market should be allowed to develop the pricing mechanisms, and the mechanisms chosen should not have any bearing on whether the Commission has jurisdiction. Drivers of PEVs have widely different needs and willingness to pay for public charging. For

example, the electric vehicle market currently produces cars that can travel an average of 100 miles, those that can travel more than 250, ones that can accept direct current quick charging, and plug-in hybrids that use both electric and gasoline power. Maximum charging rates vary between 1.7 and 120 kW (with the current majority weighted towards the lower end). Each PEV owner will have different preferences which are best served by varied options. To the extent a certain PEV charging need is not being met by existing supply, the City believes that market participants should be given every opportunity to develop an acceptable solution.

Although the City believes that the market should be the dominant force in public charging station development, the City does recognize that the Commission's jurisdiction over utility rates can play an important role in fostering widespread PEV acceptance. For example, in Con Edison's ongoing electric rate case, the City submitted testimony recommending certain changes to Con Edison's existing SC 1 Voluntary Time of Use ("VTOU") Rate to promote off-peak charging of PEVs. As discussed further in that testimony, in order to make the VTOU Rate as user friendly as possible for customers, the City requested that the Commission approve a VTOU Rate with an off-peak period beginning at 11 PM and ending at 8 AM. Expanding the off-peak period for Con Edison's SC 1 VTOU Rate is an excellent example of how the Commission can use its existing jurisdiction to foster PEV development, while avoiding additional regulatory barriers to widespread adoption.

<u>Utilities as Owners or Operators of Charging Stations</u>

4. Should the Commission allow electric distribution utilities operating in New York State to own or operate Charging Stations:

a. as part of their regulated operations?

On balance, the City currently prefers that distribution utilities not own charging stations as part of their regulated operations. If the utility owns PEV charging stations as part of

its regulated operation, market power issues could hinder a burgeoning private ecosystem. Therefore, as these nascent markets develop, it is the City's position that the utilities should not offer charging stations to the public. It is the City's position that Commission-led tariff changes that account for the unique nature of charging can allow the private sector to flourish, which will ultimately benefit consumers. The Commission can have the most impact by improving rate options for PEV owners, including improving the VTOU rates. By working together to improve the VTOU rates, the Commission, Con Edison and the City can ensure that New York State can fulfill its potential as one of the nation's top four electric vehicle markets.[4]

> b. segregated from their regulated operations, treating Charging Station assets as nonutility property and revenues and expenses related to Charging Station operations as revenues and expenses from nonutility operations?

The City would support this form of ownership as long as it does not provide the utility with unfair business advantages over its competitors. Regardless of ownership, a utility could potentially offer several creative programs to promote charging stations, including on-bill financing of chargers or hardware discounts to encourage beneficial behavior. For example, a program modeled on Con Edison's distributed load control thermostat program may be possible, even without the utility owning charging stations. Under that demand response initiative, the utility provides and installs hardware worth up to $300 and an additional $50 gift certificate for customers willing to allow the utility to change their thermostat settings.[5] Bosch, a manufacturer of automobile components, is now offering home electric vehicle charging equipment ("EVCE") for $500, so it may be economical for utilities to consider offering free or discounted charging equipment in exchange for customers allowing peak shaving control of a home's charger. The

[4] *See* http://www.navigantresearch.com/research/electric-vehicle-geographic-forecasts.

[5] *See* http://www.coned.com/energyefficiency/free_thermostat.asp.

Commission should examine the feasibility of such a program, or others, as part of its review in this proceeding.

Additionally, utilities should explore whether there are locations in their service territory which have excess capacity and therefore might be a suitable location for having discounted rates for charging stations. Some charging, especially high voltage quick chargers, can be sited to minimize electrical infrastructure costs by locating them in networks with lower loads, where feeders would not require reinforcement, or in locations where it would be easier to install a transformer. In lieu of utility ownership, it would help the market if utilities identify locations in their territory with the most excess capacity and therefore might be suitable locations for discounted rates for quick charging.

5. Should unregulated affiliates of electric distribution utilities operating in New York State own or operate Charging Stations?

   Please see the City's response to Question 4(b).

6. State-wide, the number of PEVs has increased from 962 in May 2012 to 3,931 in April 2013. Based on Department of Motor Vehicle Records, the concentration of PEVs by zip code can be ascertained.

   a. What steps can be taken to ensure that utilities are aware of new EVCE locations so they can proactively address any necessary distribution facility upgrades?

   Most PEV charging will likely occur in homes. If customers are offered attractive electricity rates for electric vehicles, these customers will self-identify themselves as PEV customers by signing up for those rates. In New York City, Con Edison is currently operating a pilot of a behind-the-meter "gateway" device that can wirelessly transmit real time consumption for the charging equipment electrical circuit. This device could allow electric vehicles to be separately metered without requiring new electrical service, ultimately saving the consumer money by avoiding the customer charge associated with a stand-alone utility account dedicated

to the charging equipment. If this technology allows customers access to time of use rates for their PEVs without an expensive fixed monthly customer fee, utilities will gain excellent information on PEV penetration and, as described in 6(c), charging behavior.

b. What customer privacy concerns need to be addressed?

As discussed throughout these comments, the City feels that properly designed electricity rates will encourage PEV owners to switch rates. The City does not believe that an opt-in PEV rate raises privacy concerns.

> c. If distribution facility upgrades are necessary to accommodate PEV charging, should such costs be shared among all customers (i.e., rate-based), or allocated in some other way?

The City believes that PEV rates can be designed to minimize distribution facility upgrades. An analysis undertaken by Con Edison in 2010 in support of a City study of electric vehicles showed that with off-peak charging the grid could accommodate over 230,000 electric vehicles by 2018 with minimal substation impacts.[6] Though PEV usage is increasing, the State is still far from this number.

In general, the City does not believe there is a basis for charging PEV service hook-ups any differently than how other services are charged. Although electric vehicles may create new costs for the system, they also create new revenue. Indeed, they may in fact reduce average system costs by increasing off-peak utilization of the network. Accessible time of use rates can not only encourage good behavior (in terms of charging time and potentially speed), they can also be a tool to better understand charging behavior. Data from the "gateway" pilot or other PEV sub-meters should be used to determine the types of charging taking place, providing stakeholders with insight into local trends.

[6] *PlaNYC*, Exploring Electric Vehicle Adoption in New York City (January 2010) at 16.

d. At what level of PEV use would there be transmission level performance impacts? Are there any strategies that could minimize such impacts?

The utility companies should be in the best position to understand and analyze transmission-level impacts. Nevertheless, the data provided by Con Edison for the 2010 study referenced above suggests that off-peak charging is the key to reducing the strain on the transmission system.

e. To what extent can the State's solar photovoltaic (PV) policies, under the NY Sun initiative, be utilized to offset potential increases in peak demand that may result from the expanded use of EVCE, particularly at publicly available charging stations?

Like electric vehicles, the City is also a supporter solar energy. Theoretically, customers with installed solar panels will be generating electricity during peak periods, thereby reducing peak demand. The Commission therefore should explore in this proceeding whether it is appropriate to provide rate discounts to PEV charging stations if they combine PEV charging with solar energy production.

Utility Metering and Rate Issues

7. How should the Commission exercise its regulatory authority to ensure that PEV charging, both at Charging Stations and in private locations, occurs in a manner that is consistent with grid capabilities, e.g., through time of use (TOU) or other rate structures?

8. Do existing rate structures need to be modified to accommodate the evolution of the PEV market? Are additional measures needed to increase the use of TOU rates for EVCE?

The Commission should make VTOU rates available to residential users that are as user friendly as possible and avoid all unnecessary charges, including separate customer charges for charging equipment, that will inhibit widespread PEV adoption. Evidence from Tennessee and San Diego shows that customers respond to TOU incentives. According to the Natural Resources Defense Council, EV-owning customers of San Diego Gas & Electric

programmed their vehicles to start charging at midnight, when TOU rates went into effect.[7] In comparison, customers in Nashville, Tennessee that did not have attractive TOU rates exhibited an entirely different charging pattern, with a load curve that peaked during on-peak evening hours.

The solution for large energy users, such as quick charge stations and vehicle depots, is more complex. Because of the current demand charge structures, which impose charges on customers based on non-coincident peak demand, these larger users are not sufficiently encouraged to charge off-peak. In other words, quick charging or large depot charging, which may have energy usage that is non-coincident with peak demand, may be disincentivized by existing rates from investing in electric vehicles. Therefore, within this proceeding, the Commission should direct utilities to identify methods for reducing costs for quick charge and depot deployment. As noted earlier, the City has preliminarily identified two key areas that the utilities and the Commission should examine: (1) identifying grid locations that have excess capacity and might be attractive locations for having discounted rates for charging stations; and (2) expanding the off-peak periods for existing VTOU rates to make them more customer-friendly.

The need to reasonably accommodate larger charging customers is urgent. For example, the City has commissioned a task force to determine how to electrify 33% of its taxi fleet. The benefits of such electrification are substantial, including high visibility for PEVs; the resiliency benefit associated with increased vehicle diversification; and significant environmental benefits, including 84 tons of annual CO2-equivalent abatement. The challenges are significant, however, and require not only finding a vehicle that meets taxi needs, but also making charging

[7] Case 13-E-0030, Consolidated Edison Company of New York, Inc., Direct Testimony of Luke Tonachel on Behalf of the Natural Resources Defense Council (May 31, 2013) at 5-6.

affordable. For a quick charger that is used over 14 hours a day, the City's analysis shows that demand charges are nearly 40% the overall electrical bill.[8] At that price, electric vehicles cannot be price competitive as taxis.

Although the City acknowledges that Con Edison already offers TOU demand charges in the voluntary rates available to all demand metered customers (in SC 9 Rate III), this rate has a large peak window that does not incentivize customers to quick charge or to avoid charging during times that are most detrimental to the grid. Taxi fleets are a closed system, so there may be more control over charging behavior. But even in the case of public use, more grid-friendly systems (like off-peak charging) are not rewarded under the conventional rate. The Commission should therefore use this proceeding to examine ways to make existing VTOU rates more customer- and grid-friendly.

Addressing utility charging rates also could expand penetration of electric vehicles for commercial deliveries. When Duane Reade replaced 15 of its diesel trucks with electric ones, it removed the pollution equivalent of 1,000 passenger cars. In addition to Duane Reade, New York City fleets for companies like DHL, Frito Lay and FedEx have made meaningful commitments to electric vehicles. All of DHL's Manhattan delivery vehicles are either hybrid or electric. There is significant public benefit for electrifying these relatively high mileage vehicles, which is partly why the City and NYSERDA partner on grant programs to reduce the higher marginal cost of medium duty electric vehicles. Yet, current demand charges create perverse incentives for large depots of electric vehicles and existing VTOU rate structures do not provide adequate relief. Therefore, it is important for the Commission to examine

[8] This analysis assumes a 50 kW charger at full utilization on SC 9 Rate I with estimated 2012 market supply charges.

modifications or alternatives to existing VTOU rates to determine the proper way to further incentivize electrification of commercial fleets.

To be clear, the City is not advocating that off-peak energy users should be exempt from demand charges, since these customers may very well be creating new network costs. An electric vehicle depot may need new or reinforced electrical service. Feeders may even need to be upgraded if electric vehicle depots are adjacent to each other. Yet the City believes those costs are invariably less than if that load were coincident with peak needs. Thus, the Commission should examine whether existing demand charges are properly structured to recover the costs imposed by PEV owners and PEV charging stations. One potential alternative that may warrant further study is using the customer's Installed Capacity Tag, as discussed in the direct testimony of Department of Public Service Staff witness Christopher Graves in Cases 13-E-0030, et al.[9] The City is not suggesting that electric vehicle charging be cross-subsidized, but rather that its unique load characteristics are properly reflected in rates.

9. What additional metering policies or protocols (e.g., dual metering, submetering) may be needed to accommodate various EVCE options?

First, as noted above, the Commission recently exempted PEV charging stations from the Commission's submetering regulations. PEV charging stations can therefore submeter electricity without obtaining Commission approval.[10] As a result, there should be no required changes to the Commission's submetering protocols needed to accommodate various EVCE options.

[9] Cases 13-E-0030, et al., Consolidated Edison Company of New York, Inc., Direct Testimony of Christopher L. Graves (May 31, 2013) at 4.

[10] 16 NYCRR § 96.2(d).

As also discussed above, Con Edison has an ongoing pilot program utilizing the "gateway" device that can wirelessly transmit real time consumption for the PEV charging equipment electrical circuit. The City believes that this gateway device could be an attractive option for PEV metering and looks forward to assisting Con Edison in analyzing the results of the program. If the gateway device is adopted as a permanent option, then the City believes that any monthly charge associated with the gateway should be reasonable, reflecting the Commission's interest in encouraging off-peak charging and the low marginal cost of serving an already existing circuit. Customer fees that treat PEV charging equipment as a separate customer will discourage adoption.

Consumer Issues

10. What risks face consumers in the market for EV charging services and how does, or should the market or other entities address those risks?

As with any service, EV consumers face risks. In the case of electric vehicles, these risks include opportunistic pricing or, in the case of quick charging, charger incompatibility. Because EV customers have buying power in the form of numerous choices, it is the City's position that the market can and will mitigate those risks.

11. To what extent should outreach efforts integrate PEV and solar PV information?

As noted above, there may be an opportunity to provide additional rate discounts to customers that pair PEV charging stations with solar PV. The City's 2010 market research study showed that the ability to offset EV charging with renewable power greatly increased potential EV adoption.[11] To the extent the Commission identifies such an opportunity in this proceeding, it should encourage utility companies to incorporate this potential rate discount into their outreach efforts with respect to PEVs and PEV charging stations.

[11] *PlaNYC,* Exploring Electric Vehicle Adoption in New York City (January 2010) at 17.

Respectfully submitted,

Dated: July 8, 2013
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